CLAIMS

I claim:

1. A pharmaceutical composition for therapeutic or prophylactic use comprising a silica containing solid having an average particle size of about 6 microns or less.

2. The pharmaceutical composition according to claim 1 wherein the silica containing solid is selected from the group consisting of zeolites, silicas, clays, double hydroxides, and mixtures thereof.

3. The pharmaceutical composition according to claim 1 wherein the silica containing solid is zeolite containing encapsulated metals or metal complexes.

4. The pharmaceutical composition according to claim 3 wherein the metal complexes are metal - salen complexes, phthalocyanines, corrinoides or porphyrines.

5. The pharmaceutical composition according to claim 1 wherein the silica containing solid is silica gel or other silicas containing encapsulated metals, metal complexes, proteins, DNA or whole cells or tissue samples.

6. The pharmaceutical composition according to claim 1 wherein the silica containing solid is mesoporous aluminosilicate containing encapsulated metal complexes, proteins, DNA or small molecules having pharmaceutical activity.

7. The pharmaceutical composition according to claim 1 wherein the silica containing solid is modified by surface adsorption of molecules to enhance the bioavailability of the silica containing solid.

8. The pharmaceutical composition according to claim 7 where the silica containing solid is modified by surface adsorption of molecules selected from the group consisting of vitamin B12 and silanes.

9. The pharmaceutical composition according to claim 1 where the silica-containing solid is dealuminated.

10. The pharmaceutical composition according to claim 1 where the pores of the silica containing solid are modified by silanation, methylation, surfactant adsorption or other chemical reaction to change the wettability, charge or size of the pores.

11. A method to modify gene expression, cell proliferation, death, growth rate or differentiation by administering to a mammal a silica containing solid as an antioxidant or oxidant.

12. A method to enhance immunogeneity of protein antigens, other biological macromolecules, whole cells or cell fragments by administering to a mammal in need thereof a silica containing solid as a vaccine adjuvant in combination with protein antigens, whole cells or cell fragments.

13. A method for providing sustained delivery of a pharmaceutically active agent by using a silica containing solid as a reservoir for the pharmaceutically active agent.

14. The method of claim 13 wherein the pharmaceutically active agent is selected from the group consisting of metals, metal complexes, small molecules, proteins, DNA, cell fragments and whole cells.